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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,605	06/27/2005	Erik Shepard Thiele	CH2856USPCT	8992
<div>7590 01/08/2008 E I Du Pont De Nemours and Company Legal Patents Wilmington, DE 19805</div>			<div>EXAMINER PARVINI, PEGAH</div>	
			<div>ART UNIT 1793</div>	<div>PAPER NUMBER</div>
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,605

Applicant(s)

THIELE ET AL.

Examiner

Pegah Parvini

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,12 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 20070814.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-8 and 12 in the reply filed on August 14, 2007 is acknowledged. Since the Applicants did not specifically point out the supposed errors in the restriction, the election has treated as an election without traverse. See MPEP 818.03(a).

Claims 9-11, and 13-14 are withdrawn from further examination.

The election requirement has been made Final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,665,466 to Guez et al. in view of US Patent No. 6,342,099 to Hiew et al.

4. Regarding claims 1 and 15, Guez et al. teach a process for surface treatment of titanium dioxide pigment, so to obtain pigment which retain good opacity, characterized in that it comprises forming an aqueous suspension of titanium dioxide pigments and

precipitating a layer of alumina phosphate on the surface of the pigment in which this layer is precipitated from an aluminum salt such as sodium aluminate and a phosphorus compound such as phosphoric acid (Abstract; column 1, lines 9-14; column 2, lines 24-32, 65-67; column 3). Furthermore, Guez et al. disclose that the concentration of the aqueous titanium dioxide may be 900 g/l (column 7, lines 40-45). Additionally, the reference discloses that the aqueous solution is heated (column 7, lines 40-55) and that advantageously, the phosphorus compound and the aluminum salt are introduced successively into the aqueous suspension of titanium dioxide (column 3, lines 45-48). Moreover, Guez et al. disclose that the precipitation occurs at a pH which is suitable to precipitate the alumina phosphate which may be a pH between 4 to 8 (column 3, lines 49-51). Further, the reference discloses that the amounts of aluminum salt and of phosphorus compound which are introduced are modified so as to precipitate a layer of alumina phosphate having a P/Al molar ratio of, preferably, at least 0.5 (column 30-35). In addition, the reference discloses that the pH, toward the end of the precipitation, may be controlled by the addition of acids such as hydrochloric acid (column 3, lines 55-57). Finally, the treated pigments are separated from the liquid phase of the suspension (which may be done by any known means), washed with water, dried and micronized (column 4, lines 25-30).

With reference to the titanium dioxide concentration in the initial suspension, it is noted that the claims in the instant application recite "about 14 to 40 weight percent"; the disclosed concentration falls within the claimed range by a calculation of converting

the 1L of TiO_2 pigment solution to grams units (using an estimated density) and taking a base of 100g for the claimed range of 14wt% to 40wt%.

With reference to the pH, it is noted that the reference although disclosing a pH range of between 4 to 8, discloses that the pH may be adjusted to a suitable value to obtain the precipitation. Although the reference does not expressly disclose the use of sodium hydroxide to adjust or control the pH, the fact that the reference discloses a pH range which overlaps with the claimed value would have made it obvious to have used a basic compound to modify or adjust pH, and it is well settled in the art that sodium hydroxide is used to adjust or control pH in aqueous solutions.

Guez et al. although disclosing a substantially identical process of treating titanium dioxide, does not expressly disclose curing the mixture.

Hiew et al. discloses a process of coating titanium dioxide pigment with a phosphate compound such as phosphoric acid and with an alumina compound such as sodium aluminate (Abstract; column 3, lines 1-27; column 4, lines 21-45) wherein the process includes preparing an aqueous slurry of titanium dioxide, adding the phosphate compound and adjusting the pH to 7, heating, and aging the slurry for about 20 or 30 minutes (column 2, lines 19-35).

At the time of the invention, it would have been obvious to modify Guez et al. to expressly include the aging or curing of the mixture of titanium dioxide and other components as indicated in details above, as that taught by Hiew et al. in order to obtain the precipitation of coated titanium dioxide motivated by the fact that Hiew et al. disclose that their titanium dioxide pigment retain gloss and durability; furthermore, it is motivated

by the fact that the two references are from the same field of endeavor of coating titanium dioxide and the processes disclosed are very similar.

5. Regarding claims 3 and 4, Guez et al., as indicated above, disclose a ratio of P/Al of at least 0.5 (column 3, lines 30-36). It is noted that there is overlapping ranges of molar ratio between the claimed application and reference; overlapping ranges have been held to establish *prima facie* obviousness. See MPEP 2144.05.

6. Regarding claims 5-7, Guez et al. discloses the use of between 0.5 to 5% by weight of a phosphorus compound (column 3, lines 24-29). It should be noted that taking about 0.44 moles per kilogram of phosphoric acid, in a series of conversion of kilogram to gram and moles to gram using molecular weight, would result in an estimated value of 4.312g of phosphoric acid.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guez et al. in view of Hiew et al. as applied to claim 1 above, and further in view of US Patent No. 6,395,081 to Hiew et al.

8. Regarding claim 12, Guez et al. in view of Hiew et al. '099, disclose a substantially similar process of treating titanium dioxide with alumina phosphate; the

references as combined, however, do not expressly disclose micronizing at a temperature of 200 to 420°C as that claimed in the instant application.

Hiew et al. '081, disclose a method of preparing and coating titanium dioxide with improved gloss properties comprising the steps of having an aqueous slurry of titanium dioxide, coating it via precipitation as the pH is adjusted to a desired value needed for precipitation as known in the art (Abstract; column 1, lines 65-67; column 2, lines 1-22; column 3, lines 38-40). Finally, the reference discloses steam micronization at temperature of about 260C to obtain the pigments of the desired size (column 7, lines 48-61; column 5, lines 53-55).

It would have been obvious to a person of ordinary skill in the art to have modified the combination of references in order to explicitly disclose the temperature at which micronization is done as that taught by Hiew et al. '081 motivated by the fact that their pigment has improved gloss properties. It should be noted that it is well settled in the art to micronized inorganic particles such as titanium dioxide at high temperature. Further, it is noted that the three references are from the same field of art of coating titanium dioxide.

Response to Amendment

9. Applicants' amendment to claim 1, by adding the limitation of claim 2, filed August 14, 2007 is acknowledged. However, the amendment is not sufficient to overcome the rejection as set forth above.

10. Applicants' amendment to claim 12, filed August 14, 2007 is acknowledged. However, it does not place the claim in condition for allowance as set forth above.

11. Applicants' cancellation of claims 2 and 8 is hereby acknowledged.

Response to Arguments

12. Applicant's arguments with respect to claims 1-8 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 5,165,995 to Losoi

US Patent No. 3,946,134 to Sherman

US Patent No. 3,926,660 to Holle et al.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP


J.A. LORENZO
SUPERVISORY PATENT EXAMINER